

# ANIMAL KEEPERS' FORUM

The Journal of the  
American Association of Zoo Keepers, Inc.

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**Seasons Greetings**  
from the AAZK Board of Directors and Staff



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## MISSION STATEMENT

(Revised April, 2009)

American Association of Zoo Keepers, Inc.

*The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.*

## ABOUT THE COVER

This month's cover features Tian Tian, a giant panda (*Ailuropoda melanoleuca*) at Smithsonian's National Zoological Park, by photographer Mehgan Murphy. Tian Tian was born at the China Research and Conservation Center for the Giant Panda in Wolong, Sichuan Province. His name means "more and more." He weighs about 264 pounds.

Giant pandas live in a few mountain ranges in central China, in Sichuan, Shaanxi, and Gansu provinces. They once lived in lowland areas, but farming, forest clearing, and other development now restrict giant pandas to the mountains. Giant pandas live in broadleaf and coniferous forests with a dense understory of bamboo, at elevations between 5,000 and 10,000 feet. Torrential rains or dense mist throughout the year characterizes these forests, often shrouded in heavy clouds.

The giant panda is listed as endangered in the World Conservation Union's (IUCN's) Red List of Threatened Species. There are about 1,600 left in the wild. More than 300 pandas live in zoos and breeding centers around the world, mostly in China. Source: *nationalzoo.si.edu/Animals/GiantPandas/PandaFacts/default.cfm*

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the Editor. The Editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or e-mail contributions of late-breaking news or last-minute insertions are accepted as space allows. **Phone (330) 483-1104; FAX (330) 483-1444; e-mail is [shane.good@azk.org](mailto:shane.good@azk.org).** If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found at: [azk.org/akf-submission-guidelines/](http://azk.org/akf-submission-guidelines/).

**Deadline for each regular issue is the 3<sup>rd</sup> of the preceding month.**

**Dedicated issues may have separate deadline dates and will be noted by the Editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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## FROM THE PRESIDENT

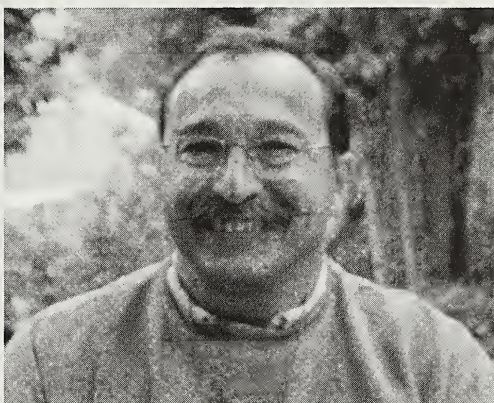
*"The illiterate of the 21<sup>st</sup> century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."*

—Alvin Toffler

**1984**

Back in 1984, I had a memorable discussion with a group of friends. The IBM personal computer was on the market, as was the Macintosh. The price range for these innovative products was between \$2,500 to 4,000. Personal computing had stepped out of the garage-kit phase and into the commercial market. Clearly these machines were out of the price range for the average consumer, especially us. But still,

we coveted these new machines and the discussion began. Our discussion covered the following topics: who would ever be able to afford personal computers and would the prices separate the world into those who can readily access information and those who cannot? Would those who can afford computers be the elite minority? We obviously did not think this through from a marketing perspective because within ten years, computers would increase in capacity and performance and reduce in price to just under \$1000. Almost 30 years later, personal computing would include desktops, laptops, netbooks, tablets, smart phones, blue ray, just to mention a few. Today, for just \$200, one can purchase a tablet and have access to just about anything available on the internet. Many of you know of my flotilla of electronic gadgets, a testament to just how wrong we were back in '84.



**2012**

And now, almost thirty years later, I sit here writing news that contradicts the early prophetic gloom of a bunch of twenty-four year olds. It is good news and I happily eat crow, knowing that significant advances in technology, followed by marketing drives to bring information to every home and every pocket, has made a momentous contribution to animal care.

I mentioned last month that AAZK has stepped into the 21<sup>st</sup> Century by teaming up with NP Training Works to provide even more learning opportunities for our membership. Since 2007, the AAZK Board of Directors has made great strides to improve our professional development at the conference level. Our Professional Development Committee (PDC) has been working steadily since then and has transformed the conference format into its present state. Prior to 2007, PDC was responsible for organizing just two professional workshops per conference. We've come a long way since then.

Since the San Diego Conference in 2011, PDC has been responsible for organizing over twenty workshops per conference, adding a greater level of skills development for attendees. However, since conference attendance represents less than 10% of our total membership, beefing up the workshops only partially fulfills our mission of advancing excellence in the animal keeping profession. In other words, the good that we do, affects the few. We're changing that by providing an opportunity for all of our membership to have access to valuable information, helping to create a balance of who has access to animal care information and quality instruction. AAZK can now bring professional development opportunities to those who cannot attend our national conferences. It's our goal and it's our mission. Through online learning, AAZK professional development will be reaching a new level.

Our distance learning format will incorporate the following:

- Past AAZK Conference workshops with slide and audio presentation
- Fundamental training
- Current and completed courses
- Certificates
- Skills and interest matching with other peers
- Discussion group development
- Events
- Resources
- Alerts

We will begin by transforming past workshops along with fundamental training. The annual subscriptions will be very affordable with details to follow soon!

Our passion for animals drives us to provide the very best in animal care. Acquiring the proper skills to do so is paramount to helping sustain that drive. Learning begets learning and is the basis for significant advances in animal care. Making those learning opportunities available on a wide-spread level is what AAZK is all about. I am proud to be part of an organization that makes such a profound impact on animal care.

One final note: I am constantly referencing our mission at AAZK when I speak of future plans, but rarely speak of our vision. While our mission is what I like to refer to as our rudder, our vision is our final destination.

### **Vision Statement**

AAZK will be the leader in the zoo and aquarium industry fostering professional development and personal connections that advance animal care, animal welfare and conservation.

As always, I welcome your thoughts and input. E-mail me at [bob.cisneros@aazk.org](mailto:bob.cisneros@aazk.org) , I would love to hear from you.



### References

Toffler, A. 1970. Future Shock. Random House. New York, NY.

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**The AAZK Board of Directors sends their sincere appreciation to  
the Phoenix Chapter for sponsoring this month's AKF!**



# THANK YOU!

## Phoenix Chapter



Current officers are:  
President: Leilani O'Brien  
Vice President: DeLaura DeMarco-Logue  
Secretary: Amy Evans  
Treasurer: Leilani O'Brien

Website: [phoenixaazk.org](http://phoenixaazk.org)  
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EBay Giving Mission Fish: [missionfish.org](https://www.missionfish.org)

*The mission of the Phoenix Chapter of AAZK is to support zoo personnel in their roles as animal care givers, public educators, and conservationists; to support professional growth by providing resources for continuing education; to enhance animal care through enrichment; and contribute to global conservation efforts through fundraising.*

The Phoenix Chapter continues to work very hard fulfilling our mission.

Annual events:

- **Billiards for Bears** We started this fun billiards tournament event in 2010 to raise awareness of the global threats facing bears while raising money to aid in bear conservation worldwide. Proceeds go to a variety of bear conservation organizations as well as to funding zoo keeper education. Over the years we have established a relationship with the Andean Bear Conservation Fund (ABCF) in Ecuador and have sent a portion of funds raised, supporting the rehabilitation and release of wild Andean bears.
- **Bowling for Rhinos** Our Chapter total from our 2012 event was \$8,810.00, raising our total raised to \$51,620.68 since 2004.
- **AAZK Auction** Each year the Chapter selects a conservation organization to benefit from our largest fundraiser of the year. Proceeds from the auction also allow the Chapter to send members to conferences, donate to various local and global conservation causes, provide monitoring equipment such as video cameras and computers to the Phoenix Zoo, or animal enrichment products.

In addition to our annual fundraising events, we support local events such as the Run for the Cheetah, and the Walk in the Wild. We also became a sponsor for the annual AZA conference held this year in Phoenix.

Our Chapter holds monthly meetings where we hold a raffle for one National AAZK membership. We've also enjoyed "Movie Nights" and holiday parties to promote fun social time as a break from working so hard throughout the year on fundraising events.



The Phoenix Chapter is proud to support our members and the organizations we are so passionate about.

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# COMING EVENTS

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Post Your Upcoming Events here — e-mail [shane.good@aazk.org](mailto:shane.good@aazk.org)

**February 27 - March 2, 2013**

**21<sup>st</sup> Annual Conference of the  
International Association of Avian  
Trainers and Educators**

Hosted by Tampa's Lowry Park Zoo, Tampa,  
FL. For more information go to: [iaate.org/  
iaate-annual-conference/2013-conference](http://iaate.org/iaate-annual-conference/2013-conference)

**April 14-19, 2013**

**ABMA Annual Conference  
Toronto, Canada**

The ABMA is heading north, eh! Visit Canada's cultural, entertainment and financial capital while experiencing the country's largest zoo! Don't miss a keynote address by Ian Stirling of Polar Bears International, an action-packed full day site visit at the Toronto Zoo and fun events including a very Canadian evening at the Hockey Hall of Fame! Stay at the Delta Chelsea Hotel, located in the heart of the city, for only \$119 a night (that's Canadian dollars, of course!). So grab your toque and your passport and join us for a truly international conference! For more information, visit [theabma.org](http://theabma.org).

**April/May 2013**

**Chimpanzee Meeting and  
Husbandry Workshop**

The Chimpanzee SSP and the Houston Zoo are hosting the next Chimpanzee Husbandry Workshop to take place April 30 – May 2, 2013. The Chimpanzee SSP meeting will precede the workshop on April 29, 2013. Please visit <https://houstonzoo.doubleknot.com/event/chimp-husbandry-workshop-registration/1250219> for more information.

**May 5-9, 2013**

**Eighth Biannual Rhino Keepers' Workshop**

Hosted by San Diego Zoo Global. For Call for Papers and more information contact [laubery@sandiegozoo.org](mailto:laubery@sandiegozoo.org)

**May 20-23, 2013**

**World Crocodile Conference**

"Living with Crocodilians" 22<sup>nd</sup> Working Meeting of the IUCN — SSC, Crocodile Specialist Group. For more information and registration, go to: [csgsrilanka.com/](http://csgsrilanka.com/)

**July 8-12, 2013**

**Zoos and Aquariums Committing  
to Conservation (ZACC)**

Hosted by Blank Park Zoo, Des Moines, Iowa. The conference will bring together colleagues from the field and zoos in an informal setting to network, share ideas and support one another in our shared commitment to conservation. Registration is available at [blankparkzoo.com/  
index.cfm?nodeID=48429&audienceID=1](http://blankparkzoo.com/index.cfm?nodeID=48429&audienceID=1). Contact Jessie Lowry with questions at [jrlowry@blankparkzoo.org](mailto:jrlowry@blankparkzoo.org).

**August 7-10, 2013**

**11th Annual Symposium on the Conservation  
and Biology of Tortoises and Freshwater Turtles**

Co-hosted by the Turtle Survival Alliance and the IUCN-TFTSG in St. Louis, Missouri. Please visit [turtlesurvival.org/get-involved/  
conference](http://turtlesurvival.org/get-involved/conference) for more information, or contact Heather Lowe at [Hlowe@turtlesurvival.org](mailto:Hlowe@turtlesurvival.org).

**September 22-26, 2013**

**AAZK NATIONAL CONFERENCE**

**Hosted by North Carolina Zoo and North  
Carolina AAZK Chapter, Asheboro, NC**

For more information go to:  
[ncaazk.com/2013nationalconference.htm](http://ncaazk.com/2013nationalconference.htm)

**October 13-17, 2013**

**WAZA Annual Conference**

Hosted by Disney's Animal Kingdom. For more information go to: [waza.org](http://waza.org)

**October 15-18, 2013**

**ICEE — International Conference on  
Environmental Enrichment**

Hosted by the National Zoological Gardens of South Africa at the Kwalata Game Ranch, South Africa. For more information, go to [nzg.ac.za/icee2013](http://nzg.ac.za/icee2013)



# National Conferences



## AZA

2013 - Kansas City, MO - September 7-12  
2014 - Orlando, FL - September 12-17  
2015 - Salt Lake City, UT - September 17-21

**[aza.org](http://aza.org)**

## AAZK

2013 - Asheville, NC - September 22-26  
2014 - Orlando, FL - September 8-12  
2015 - St. Louis, MO - Dates TBD

**[aazk.org](http://aazk.org)**

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# — AAZK ANNOUNCES NEW MEMBERS —

## NEW PROFESSIONAL MEMBERS

Ashley Graham, Buttonwood Park Zoo, New Bedford (MA)

Kellie Robertson, York's Wild Kingdom, York Beach (ME)

Nicole Castillo, Turtle Back Zoo (NJ)

Nicolette Aquilino, Cape May County Zoo, Cape May Court House (NJ)

Sarah Parker, Central Park Zoo (NY)

Kevin Kerr, Catoctin Wildlife Preserve & Zoo (MD)

Jennifer Caton, Bar C Ranch, Berryville (VA)

Christyne Fitzgerald, Mill Mountain Zoo, Roanoke (VA)

Catherine Connell, Riverbanks Zoo (SC)

Jessica Goetschel, Silver Springs Nature Theme Park, Ocala (FL)

Mallory Seibold, Columbus Zoo & Aquarium, Powell (OH)

Bethany Hickey, Ft. Wayne Children's Zoo, Ft. Wayne (IN)

Jessica Shold, Lake Superior Zoo, Duluth (MN)

Michelle Joubert, Great Plains Zoo (SD)

Anthony Provost, The Wild Center (NY)

Chandelle Cotter, Six Flags Discovery Kingdom, Vallejo (CA)

Carissa Arellanes, Six Flags Discovery Kingdom, Vallejo (CA)

## RENEWING CONTRIBUTING MEMBERS

Laurie Bingaman Lackey, Hendersonville (NC)

## RENEWING INSTITUTIONS

Seneca Park Zoo, Rochester (NY)

Brookgreen Gardens, Pawley's Island (SC)

Birmingham Zoo, Inc., Birmingham (AL)

Cleveland Metroparks Zoo, Cleveland (OH)

John Ball Zoological Garden, Grand Rapids (MI)

Como Park Zoo, St. Paul (MN)

Dickerson Park Zoo, Springfield (MO)

Houston Zoo, Inc., Houston (TX)

Orange County Zoo, Orange (CA)

Santa Barbara Zoo, Santa Barbara (CA)



## Behavioral Husbandry Committee Seeks New Members

Do you have a strong background in training or enrichment? Are you a motivated AAZK member who wants to give more to the organization? Do you have the drive and enthusiasm to do more with your knowledge and expertise? The Behavioral Husbandry Committee (BHC) is looking to recruit new members!

For the first time since the Animal Training Committee and the Enrichment Committee merged to become the BHC, we have openings for new committee members. To apply, please submit a letter of interest along with your resumé and a writing sample to Julie Hartell-Denardo at [jshartell@yahoo.com](mailto:jshartell@yahoo.com).

**B  
H  
C**  
**NEEDS  
YOU!**



## CALENDARS FOR SALE!

The International Rhino Keeper Association (IRKA) and the International Rhino Foundation (IRF) produced the 2013 Rhino Conservation Calendar with pictures submitted by rhino supporters from around the world! The sale of the 2013 Rhino Conservation Calendar will assist the Rhino Foundation of Indonesia (Yayasan Badak Indonesia or YABI). YABI oversees the management of the Sumatran Rhino Sanctuary (SRS) on Sumatra, a captive breeding program for the species. You may be familiar with the SRS because on June 23, 2012, the first baby was born at the SRS, a

male named Andatu, who is featured in the 2013 Rhino Conservation Calendar. The calendars are being sold for \$26 each (including shipping) with all proceeds going towards covering the core costs of the SRS: staff salaries, vehicle running costs, keeper & veterinary costs, veterinary supplies, non-browse nutritional supplements, & facility maintenance. If you are interested in purchasing a calendar to help the IRKA's and IRF's cause, please visit [rhinokeeperassociation.org](http://rhinokeeperassociation.org) or e-mail [IRKACalendar@gmail.com](mailto:IRKACalendar@gmail.com).

# CALL FOR PAPERS

## For Dedicated Issue of *Animal Keepers' Forum* – Multi-species Bird/Ungulate Habitats

The challenges we face in building sustainable zoo populations while creating dynamic habitats require innovative solutions. Ungulate and bird curators, managers and keepers have much to gain by collaborating together to explore ways to maximize our limited exhibit space. Increased space for our program species, more dynamic and more naturalistic exhibits to benefit our animals and our visitors, and diversification of keeper skills are just some of the benefits of multi-species bird/ungulate habitats.

We encourage those interested to submit manuscripts for consideration to be included in this dedicated issue. Possible topics could include, but are not limited to:

Reproduction/neonatal care

Veterinary care

Pest control

Staff communication

Birds 101 for Hoofstock Keepers/Managers

Training/enrichment

Feeding/nutrition

Exhibit design

Introductions of new animals

Benefits of Hoofstock/Bird multi-taxa habitats

Hoofstock 101 for Bird Keepers/Managers

Species selection

Papers should be submitted electronically, in MS Word only, to [shane.good@aazk.org](mailto:shane.good@aazk.org). Please use Times New Roman font (10 pt. text body). Please put "Bird Ungulate Issue" in the subject line of your e-mail. Papers should be no more than 10 pages in length. Any charts and/or graphs should be submitted in their native program (i.e. Microsoft Excel, Word, etc.). Photos submitted electronically should be high-resolution (minimum 300 dpi, 1 MB, 900 x 600 pixels) jpg or tiff files. Photos, charts, and graphs should be submitted as separate files and not be embedded in the manuscript. Be sure to include proper photo credit and a suggested caption for each photo. Please reference the complete set of AKF submission guidelines at [aazk.org/akf-submission-guidelines/](http://aazk.org/akf-submission-guidelines/).

Be sure to also include your complete contact information including name, address, e-mail and a daytime phone where you may be reached if we have questions concerning your submission. Also be sure to include your facility and your job title at that facility.

Deadline for submission of articles for this special issue is **February 1, 2013.**




### Special Call for Papers: Dedicated Issue on Gorillas

All papers on gorilla husbandry and conservation welcome.

**Deadline for submissions is February 1, 2013.**

See above for submission guidelines.





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## The 2012 BFR Results

The highest amount of funds ever raised in a single year for BFR was back in 2007 when AAZK Chapters raised \$316,395. Our current total as we went to print was \$312,442! We are so close to passing that mark, it's now just a matter of collecting from the last few events and we will surpass our record! Great job everyone!



### The 2012 Top 10 Bowling For Rhinos money-raisers in the U.S. and Canada are:

1. Jennifer Gonsman - Los Angeles with \$35,500 - **wins two-week trip to Lewa - All time record!**
2. Ashley Orr - Dallas with \$13,901 - **wins two-week trip to Lewa**
3. Gil Myers - National Chapter - \$10,817
4. Logan Agan - Oklahoma City- \$9,589
5. Lindsay Ireland - Detroit - \$8,500
6. Patty Pearthree - North Carolina- \$6,005
7. Linda Stark- Indianapolis- \$3,577
8. Yvette Kemp - San Diego- \$1,058
9. Emily Hallford - Tulsa- \$1,000
10. Susie Turner - Heart of Illinois- \$550

### The Top 3 Bowling For Rhinos money-raising AAZK Chapters for 2012 were:

1. Los Angeles - \$35,500 (all time record!)
2. Dallas - \$16,417
3. San Diego - \$16,109

### Top 10 money-raising Chapters since Bowling For Rhinos started in 1990:

1. Oklahoma City - \$247,547
2. Portland - \$229,562
3. Dallas - \$193,403
4. Detroit - \$181,622
5. San Diego - \$173,512
6. Utah - \$139,889
7. Philadelphia - \$135,323
8. Lincoln Park - \$131,057
9. Los Angeles - \$130,898
10. Indianapolis - \$123,611

Congratulations to everyone who made the 2012 BFR season a success!

### BFR 2013

With 2013 right around the corner, it's never too early to start laying down the foundation for your 2013 BFR event. Let's plan now to make 2013 our best year ever!



# Pangolin Poachers Arrested

Uga Yogaswara  
Rhino Protection Unit  
Bukit Barisan Selatan National Park

Translated by  
Sectionov  
Indonesian Liaison  
International Rhino Foundation

The endangered Sunda pangolin (*Manis javanicus*) is threatened by hunting, primarily for medicinal purposes. This secretive nocturnal mammal is found throughout much of mainland Southeast Asia, as well as on the islands of Borneo, Java and Sumatra. Pangolins are killed for their scaly skin, which is believed to have medicinal properties according to traditional Chinese medicine, as well as for their meat. Interestingly enough, pangolin “scales” are really compressed hairs composed of keratin, and thus very similar to rhino horn.

In addition to Sumatran rhinos, Bukit Barisan Selatan National Park is also home to elephants, tigers, tapirs, pangolins and a host of other threatened Indonesian species, all of which benefit from the presence of Rhino Protection Units (RPU) supported by AAZK’s *Bowling for Rhinos* fundraising efforts. The extended benefits to all wildlife were demonstrated recently by the arrest of poachers who were trying to sell pangolin, meat and skins in a village just outside the national park.

*“My name is Uga and I am a proud member of the Rhino Protection Units that patrol Bukit Barisan Selatan National Park. This August marked the 17<sup>th</sup> anniversary of Indonesia’s RPUs, and I was pleased to be assigned to a special mission – to capture and arrest pangolin poachers. The poaching syndicate was an RPU target for a long time, but we recently received information from informants about the sale of pangolin skins. There was not enough time to coordinate with the police, so my unit*



Officer Uga Yogaswara from Bukit Barisan Selatan National Park in Sumatra.



Officer Uga Yogaswara with confiscated pangolin skins.



*had to proceed quickly to the location where we thought the skins might be sold.*

*The mission was risky. Eight of us went, including four national park rangers who were armed with guns. Earlier that same day my unit had met tourists at the national park, including several Bowling for Rhinos participants. Right after we dropped them at their hotel, we returned to headquarters to plan the arrest. Our informant said that the sale would take place in a nearby village at 3:00 am, so we went to the location and waited for the suspects to arrive.*

*At 2:00 am there was no sign of the poachers, so we wondered if our informant was right. However, an hour later, a red mini-bus pulled up in front of a nearby house. Within minutes, someone came out of the house and got in the vehicle. As soon as he did, we moved in right behind. The suspect pulled a gun from his pocket, but one of the park rangers disarmed him before he could shoot me. There were 14 dead pangolins in the car, along with 5 kg of pangolin meat and another 1.5 kg of skins. We also found heroin and an automatic weapon.*

*The poachers will receive harsh punishment for possession of illegal wildlife, drugs and weapons, and they are lucky that a park ranger was able to disarm the man with the gun. Otherwise, they would have to face attempted murder charges. And that makes me feel very lucky, too!"*



Confiscated pangolin skins. Pangolins are classified as an endangered species.



Proceeds from Bowling for Rhinos support the Rhino Protection Units that conducted this special mission to save endangered pangolins.



# AAZK Board of Directors CALL FOR NOMINATIONS



The American Association of Zoo Keepers has opened its Call for Nominations for the 2013 Election for the Board of Directors. Serving on the AAZK Board of Directors presents a perfect opportunity to take on a leadership position in AAZK and within the zoo profession. It offers you the opportunity to have a voice in the contemporary issues of our industry. It allows you to hone your skills in leadership, project management, team building, and working with a diverse group of individuals who are dedicated to professional animal care and conservation. If this sounds like a great opportunity to you, then now is the time to run for the AAZK Board of Directors!

**Nomination forms will be due at the AAZK Administrative Office by February 28, 2013.**

The nomination forms, and the criteria for nomination can be found in the Members' Only section of [aazk.org](http://aazk.org). The 2013 Election will be done electronically, so you need to go to [aazk.org](http://aazk.org) to vote. Additionally, your Professional Membership status must be current and you must be registered on the Members' Only section of [aazk.org](http://aazk.org). Here are the key dates of the Election:

- February 28, 2013 – Nomination forms are due at the AAZK Administrative Office
- April 1, 2013 – Viewing of candidate profiles opens in the Members' Only section of [aazk.org](http://aazk.org)
- April 15, 2013 – June 1, 2013 is the official voting period
- Results of the 2013 Election will be announced after the verification of ballots, approximately June 10, 2013.

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## CHAPTER NEWS

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### Assiniboine Park Zoo's AAZK Chapter's Great Canadian Shoreline Cleanup



On September 15th, 2012 a small but enthusiastic crew from the Assiniboine Park Zoo's AAZK Chapter participated in the Great Canadian Shoreline Clean Up. We partnered up with members of the community to clean along the banks of the Assiniboine River running through our park. Data on the waste collected during the clean up has been submitted and will be added to results from across Canada.

### Reminder to All AAZK Chapters on Re-Charter Process for 2013

All AAZK Chapters are reminded that the re-chartering of all Chapters will begin in January of 2013. Re-charter packet information will be sent electronically via e-mail to the e-mail address your Chapter has provided to the AAZK Administrative Office. These e-mails will be sent the first week in January. **NOTE:** If your Chapter has changed its e-mail address since you completed your 2012 re-charter forms, you need to notify Barbara Manspeaker immediately at [azkoffice@zk.kscoxmail.com](mailto:azkoffice@zk.kscoxmail.com) so that your re-charter materials are properly received. Re-charter packets for 2013 are due back at the Administrative Office by 15 February 2013.

Your prompt compliance in filling out the re-charter packet is a critical part of maintaining our status as a 501(c)(3) non-profit association. If you do not receive your re-charter materials by early January, please contact Barb at the Administrative Office at the e-mail address above, or by calling 785-273-9149.

*Did you know? There are three key things that keep AAZK, Inc. financially solvent throughout the fiscal year: Your AAZK memberships, AAZK Conferences, and the generosity of AAZK Chapters towards AAZK, Inc., especially at re-charter time. Please keep this in mind as you complete your re-charter packets. Your Chapter donations at re-charter time make all the difference for this Association.*



# Successful Treatment of Nail Cracks for a Black Rhinoceros (*Diceros bicornis*)

By Caitlin Capistrone, Animal Keeper I, Honolulu Zoo, Honolulu, HI

## Introduction and Background

Foot problems are a relatively common occurrence in captive rhinoceros, and while vertical nail cracks can resolve on their own, intervention can decrease the healing time, prevent further problems from developing, and provide for a positive training interaction for the animal (Jacobsen, 2002).

The Honolulu Zoo houses 1.1 black rhinoceros and recently housed 1.0 white rhinoceros (*Ceratotherium simum*). The black rhinoceroses are exhibited together year-round in a 1,022 square meter [11,000 square foot] compact dirt yard, and were housed separately overnight in 56 square meter [600 square foot] barns with concrete flooring. The white rhinoceros was exhibited in a 3,057 square meter [32,900 square foot] compact dirt mixed-species exhibit with 2.2 reticulated giraffe (*Giraffa camelopardalis*) and 1.1 Grant's zebra (*Equus burchelli*), and had access overnight to a 53 square meter [570 square foot] barn with concrete flooring, a 73 square meter [780 square foot] pen with compact dirt, and the exhibit.

Since acquisition of the male black rhino, Corky, in 1999, he has had periodic foot problems, specifically vertical cracking of the lateral nails. Foot problems have not been noted in the female black rhino, Satsuki, or the male white rhino, Kruger. Treatment of Corky's feet was opportunistic at best, and involved application of antiseptic solutions. Nail cracks would appear to grow out, though reoccur frequently. When cracks occurred again in June 2010 on the lateral nails of Corky's front right and rear left feet, the splitting was more extensive, and extended the full length of the nails up to the coronary band (see Photos 1 & 2). Honolulu Zoo Veterinarian Dr. Ben Okimoto consulted with veterinary staff at the White Oak Conservation Center, San Diego Wild Animal Park, and St. Louis Zoo to determine a treatment plan.

It was hypothesized that a primary reason that Corky was experiencing foot problems, and the other rhinos were not, was related to Corky's overnight housing. In contrast to our other two rhinos, Corky defecated in his barn then appeared to pace in his barn overnight, thereby covering his feet in wet fecal matter. Nail cracks can develop when the natural waterproof layer of the hooves (periople) is disrupted by excess moisture or dryness. We believe that excess moisture, in combination with a thinning of the nail walls caused by lying on concrete and compact dirt surfaces, compromised Corky's nails. Mineral deficiencies were also considered, but because Corky was not yet trained to accept voluntary blood draws, we were unable to pursue this possibility in the short-term.



Photo 1: Front right nail, June 2010

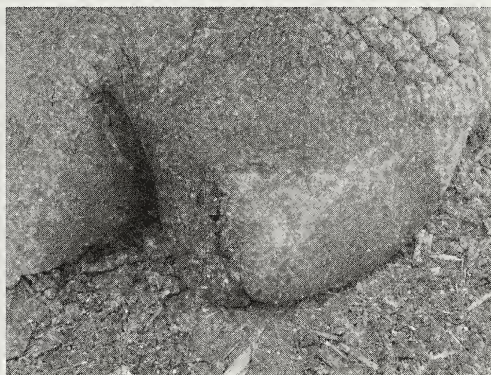


Photo 2: Rear left nail, June 2010



## Husbandry and Treatment

Starting in November 2010, Corky's overnight routine was changed. He was given access to one 28 square meter [300 square foot] barn stall, but rather than locking him into the barn, he was given overnight access to the exhibit yard and a 40 square meter [485 square foot] pen with compact sand. It was noted immediately that not only was Corky not pacing overnight in fecal matter in the barn, but also he was calmer overall.

For all foot treatments, a minimum of two people was utilized. Usually, a volunteer focused on feeding Corky his daily produce ration while a keeper worked on Corky's nails. In most cases a third person, usually a volunteer, fed Satsuki at some distance from Corky and attempted to keep her from interrupting with Corky's treatment. Our set-up to work with the black rhinos consisted of nine meters [30 feet] of vertical bars placed about 0.2 meter [nine inches] apart at the rear of the exhibit (see *Photo 3*). While we had some success with stationing



Photo 3: The author treats Corky's foot at rear of the exhibit, with help of volunteer Kevin Kaneko. Volunteer Barbara Luckner-Loveless feeds Satsuki.

Satsuki perpendicular to the bars at one end and stationing Corky parallel to the bars at the other end, this arrangement required the rhinos to be in close proximity to one another. Additionally, in order to access both sides of Corky, he was required to turn around and reposition, and brought him in even closer proximity to Satsuki. This often resulted in Satsuki bullying Corky away from the area to monopolize treats and attention. To address this issue, the decision was made to repair a door to a four square meter [41 square feet] chute that up until this point had not been utilized by rhino keeper staff. Once the chute door was repaired, Corky could then enter the chute from the rear of the exhibit, and a set of vertical bars placed 0.3 meter [one foot] apart on both sides would allow staff to access both sides of Corky's body (see *Photo 4*). Additionally, since there was no need for Corky to reposition and be near Satsuki, it reduced negative interactions with Satsuki and the overall time the treatment took. While Corky was nervous at first to enter the chute, staff was careful to work at Corky's pace and keep his experience with the chute a positive one. Once Corky was comfortable entering and stationing calmly in the chute, one person fed Satsuki at one end of the exhibit bars while another two people worked with Corky positioned in the chute.

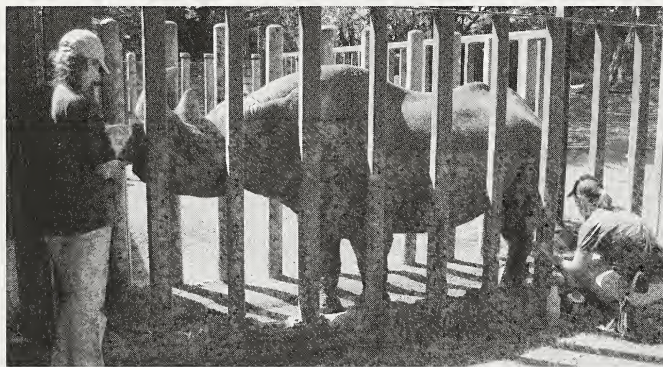


Photo 4: The author treats Corky's foot in the chute, with help of volunteer Toni Pennini.

Our foot care routine consisted of cleaning the nail cracks at least once daily: rinsing any mud and fecal matter off with water, then flushing the crack with hydrogen peroxide, then flushing the crack with Nolvasan®, then applying Betadine® to the crack and surrounding area. Approximately every two weeks, or as staff time allowed, corrective trimming was used to relieve pressure on the crack and to facilitate its correct growth. Fortunately, one of our



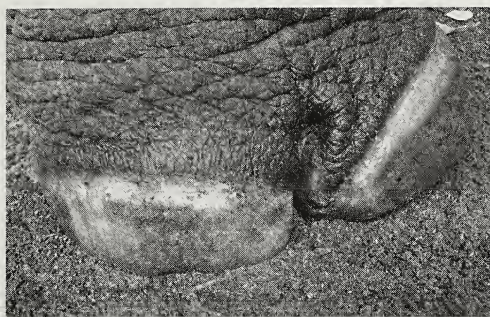


Photo 5: Front right nail, March 2011



Photo 6: Rear left nail, March 2011

Mammal Department supervisors was previously a skilled elephant keeper and experienced in elephant foot care, including corrective trimming of nails. Corky was already familiar with this keeper, and therefore comfortable with her presence. All tools and treatment implements were introduced slowly in order not to frighten Corky. Also, Corky required little desensitization to work on his feet, since he was already accustomed to being touched and brushed.

Our husbandry and treatment plan was not without challenges. On many occasions, short staffing left the rhino keeper alone in the section and unable to perform Corky's foot treatments single-handedly. Thankfully, a wonderful group of volunteers were usually able to fill in the gaps, and provide for near daily treatment. Additionally, poor exhibit design and drainage problems led to frequent flooding and consequent muddy conditions in the rhino chute during Hawaii's rainy winter months. Treatments were suspended until staff was able to pump out and clear the treatment area.

By early March 2011, keepers observed that there were very little cracks left to treat on Corky's feet. Our veterinarian confirmed what keepers had thought – our plan had worked and Corky's nails had finally healed! (See Photos 5 & 6). In order to maintain the health of Corky's nails and prevent more cracks from developing, keepers now clean all of Corky's nails once weekly with water for a good visual inspection, and then apply Farnam Rain Maker™ hoof moisturizer and conditioner. We continue with the changed husbandry routine for Corky, allowing exhibit access overnight.

## Conclusion

Although it seemed from the onset that Corky's nails would never heal, we were so glad that changes in husbandry and treatment seem to have corrected this problem. While we had some frustrations along the way, our persistence and Corky's willingness to cooperate won out in the end. This case served as a wonderful example of one of the benefits of having a positive, trusting relationship with our animals. Not only did all these positive interactions with Corky enable us to treat his feet, it also gave us the ability to subsequently easily train him to accept blood draws from the ears and hand-inject vaccinations, as he was already accustomed to close interactions with multiple people. We plan to continue with Corky's training, and additionally are now focusing on Satsuki to facilitate foot care, blood draws, and injections with her.

## Acknowledgements

Mahalo (thank you!) to Honolulu Zoo Veterinarian Dr. Ben Okimoto, Animal Keeper II Tyriss Perreira, Mammal Specialist Robert Porec, Honolulu Zoo Director Emeritus Paul Breese, and all the wonderful M-5 volunteers who gladly took on the role of "keeping Satsuki happy".

## References

Jacobsen, J. 2002. A Review of Rhino Foot Problems. *Proceedings of the 2<sup>nd</sup> Rhino Keepers' Workshop 2001*, 56-59. San Diego Zoological Society, San Diego, California, U.S.A.

## Photo Credits

All photographs were taken by article author.



## A Funny Thing Happened on the Way to the Zoo

By Carlos Torrez, Aviary Keeper  
Disney's Animal Kingdom®, Lake Buena Vista, FL



Male rhea sitting on a nest.

One hot, steamy morning in New Orleans, I received a call from the Audubon Zoo where I worked. The zoo is located in a section of Audubon Park in Uptown New Orleans along the Mississippi River. They called me to ask if I was willing to make a trip to the Smithsonian National Zoo in Washington D.C. for an animal pick up. Without hesitation I readily agreed. I was told that I would be transporting a few rhea (*Rhea americana*) eggs back to New Orleans. It sounded like a fun and easy trip, but a funny thing happened on the return trip.

After learning that the National Zoo was willing to donate three eggs from their birds, the bird curator arranged for me to arrive two days before the eggs' expected hatch date. Nothing to worry about, right? All the arrangements were made and I was set to go in the next few days to retrieve our fragile cargo.

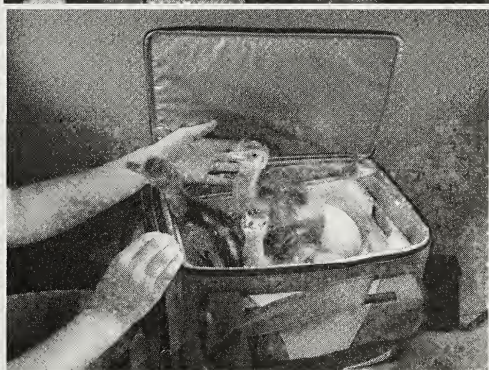
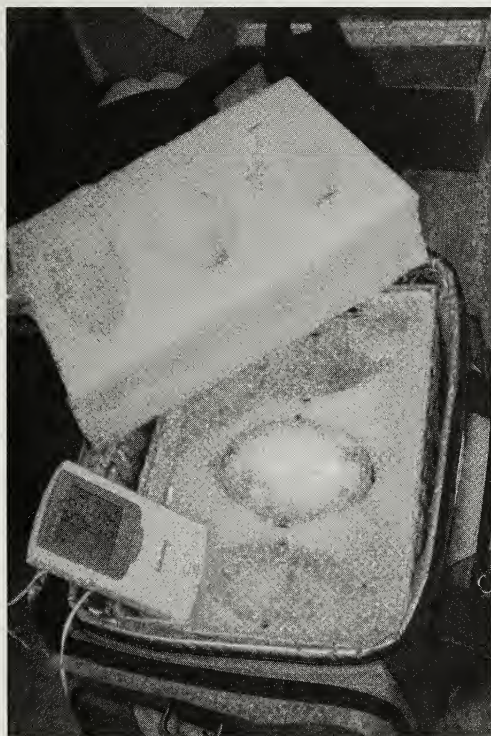
I arrived at Baltimore-Washington International Airport on a nice cool day, a welcome change from a typical hot New Orleans summer. I was greeted by Sara Hallager, one of the zoo's biologists, who took me to get a peek at the eggs. Early the next morning, I would return to New Orleans with our special cargo. So far so good!



The next morning everything was going according to plan. It was now time to get the eggs from under the male rhea and place them in our specially-designed carrier. Males are the ones that build the nest and sit on the eggs to incubate them. When we arrived at the stall where the male was sitting, we noticed that some of the eggs he was sitting on had already hatched. The eggs that were marked for Audubon had not yet hatched, and I was reassured that we still had time to get them back to New Orleans before they hatched.

*I hurriedly collected my personal belongings and rushed over to find that one of the chicks had already hatched! As I looked into the foam-filled carrier, I saw that a damp brown rhea chick was staring back at me.*

Arrangements had been made by the curators at the Audubon Zoo with the TSA at the airport to hand-check the container carrying the eggs, as they could not be sent through the airport X-ray machine. When I arrived at the TSA check point for carry-on items, the agent asked that I open the container carrying the three, four-inch-long, cream colored rhea eggs. I was asked to step aside and to get checked myself while the other agent inspected the carrier. The agent inspecting the carrier asked how many eggs I was transporting. I responded, "I have three eggs." "No there are two," she



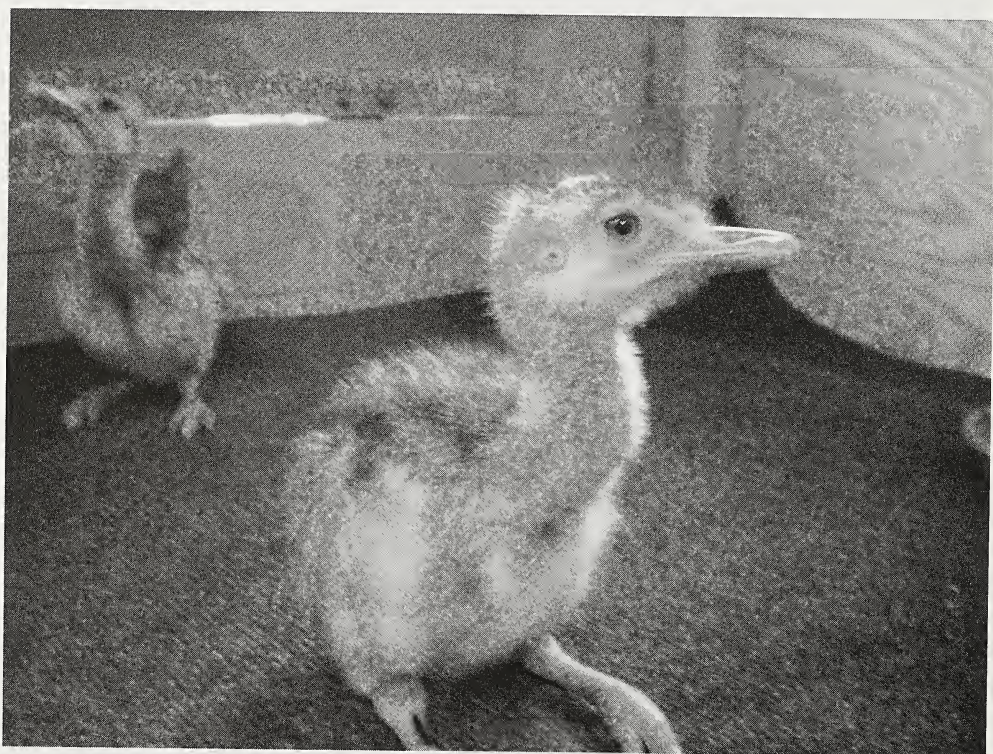
(Left) The egg carrier used to transport the rhea eggs. (Top Right) The early arrival of a rhea chick at the airport. (Bottom Right) All three eggs hatching before the completion of the trip.



answered back. Suddenly a group of TSA agents were intently huddled around the carrier. I hurriedly collected my personal belongings and rushed over to find that one of the chicks had already hatched! As I looked into the foam-filled carrier, I saw that a damp brown rhea chick was staring back at me. Not only are eggs easier to transport, but once hatched, they are not supposed to be carried on in the airplane cabin. All I could think was, "Noooo, I'm supposed to bring back eggs!"

Luckily, the TSA agents were so excited to see the newly hatched bird that they let me continue with my journey. By the time I reached the gate for my return trip to New Orleans, the second egg had hatched. Now I had two chirping little birds in the carrier. I cracked open the carrier just enough to allow fresh air in and gently had to push back their little, inquisitive beaks. Egg number three hatched about an hour later while we were in mid flight back to the Big Easy. Luckily, the airplane's noise drowned out the peeping and whistling from the chicks and none of the other passengers had a clue of what I was transporting.

After a very unusual and unforgettable trip, the rheas and I made it back safely to New Orleans and the Audubon Zoo. Some days our jobs can be routine, but every once in a while we get to have some wild adventures! I will always have a great story to tell about when "a funny thing happened on the way to the zoo."



Home safe at the Audubon Zoo, the rhea chicks inspect their new surroundings.



# Preventing Injuries Involving Electrical Cords Near Animal Pens

Mitch Ricketts, Ph.D., CSP  
Kansas State University

Two incidents in Kansas illustrate how electrical cords can be damaged near animal pens at county fairs:

Five pigs were electrocuted and several people were shocked when an electrical extension cord was pinched by a metal gate at a county fair barn (Cowley County Fair, Kansas, July 25, 2002). The pigs were housed in a row of metal pens. An extension cord belonging to a fair participant was hanging down near the gate by one of the pens. A youth was tending to his pigs on Saturday morning. As the youth shut the gate, the extension cord was pinched between the gate and the pen. The gate cut the electrical insulation, and the cord's exposed electrical wires touched the metal pen.

Several pigs were killed immediately. Others were trembling and obviously agitated. A group of nearby adults saw that there was a problem and rushed to help. At first, they thought the pigs were fighting. Soon, however, the youth and two adults felt an electrical shock. The 20-amp circuit breaker then tripped, shutting off the power. Emergency personnel evaluated the youth and the adults, none of whom requested further medical treatment. One surviving pig was later euthanized because of its injuries.

The extension cord was described as a medium-duty cord. It is unknown whether the cord had a grounding prong. The interconnected pens were constructed of metal panels and each pen had a hinged metal gate. Prior to incident, the fair board had made several electrical safety improvements due to concerns about a similar event that occurred at another fairground.

GFCIs have since been installed.

Eleven lambs were accidentally electrocuted in a row of metal pens in a barn at a county fair (Finney County Fair, Kansas, August 4, 2007). A youth discovered the dead lambs at about 6:30 in the morning. An investigation revealed that during the night, a lamb had chewed on an electrical cord, exposing the bare wires. The bare wires then touched one of the metal pens, electrocuting the lambs.

The lambs were housed in a row of eight double pens (16 pens total). The interconnected pens were constructed of metal railing. A box fan belonging to a participant was being used to keep the lambs cool during hot weather. The fan was ungrounded and was attached to the pen with baling wire. The fan was plugged into an overhead receptacle, and the fan's electrical cord was lying on top of one of the pens.

One of the lambs apparently stood up with its front feet on the side of the pen in order to reach the cord. The incident occurred overnight, and the electrical breaker tripped before the youth arrived—thus, no people were injured. Ground fault circuit interrupters (GFCIs) have been installed to prevent similar incidents in the future.

## Summary of key issues:

1. In both incidents, the electrical cords and equipment were owned and supplied by fair participants. Traditionally, fair participants bring electric fans, radios, extension cords and other equipment necessary for animal and human comfort during long, hot days at the fair. It is difficult for fair boards to inspect and regulate all of this equipment.
2. In both incidents, electrical cords became damaged during activities at the fairs. Since the cords were presumably brought to the fairs in good condition, prior inspection of equipment would not have prevented the incidents.
3. The electrical cords were damaged because they were located in or near pens, within reach of animals or in pinch points caused by gates. This finding suggests that cords suspended from overhead outlets should be supported so they do not hang freely where damage is likely to occur.
4. In the first incident, the electrical appliance (a fan) was not grounded. In the second incident, no information concerning grounding was available. *Although equipment grounding will prevent many types of accidental electrocutions, such grounding might not have helped in the two incidents reported here.* Equipment grounding can protect against electrocution if an electrical problem affects the *body of a tool or appliance* (such as the body of a fan). In both cases reported here, however, problems occurred in the electrical *cords* and did not affect the appliance bodies. In instances such as these, a grounding wire in the electrical cord might not safely divert the stray electricity. On the other hand, a ground fault circuit interrupter (GFCI) could be expected to quickly shut off power and prevent serious injury in these situations.

## Recommendations to prevent future incidents involving electrical cords in animal pens:

1. Keep drop-down cords out of reach of animals and out of pinch points by supporting the cords so they do not hang freely.
2. Install ground fault circuit interrupters (GFCIs). GFCIs are designed to detect small leakages of electrical current that occur when electricity is flowing where it shouldn't. (e.g., through a person, animal, or metal pen, for instance). When a current leakage is detected, the GFCI interrupts power fast enough to prevent serious injury from electrical shock. There are several possible strategies for installing GFCIs. Each strategy has advantages and disadvantages:

### ***Strategy A: Install permanent GFCI breakers in the facilities.***

#### **i. Advantages:**

1. As long as GFCI breakers are operating correctly, participants can not easily bypass their protection.
2. One GFCI breaker will provide protection on an entire electrical circuit.

#### **ii. Disadvantages:**

1. Personnel must be assigned to test and maintain GFCIs on a regular schedule to ensure protection. GFCIs do malfunction, and the only way to know if they are operating correctly is to test them. In facilities that are used frequently (e.g., 4-H meeting rooms), GFCIs should be tested monthly and after electrical



storms. In facilities that are used only a few times per year (e.g., fair barns), GFCIs should be tested prior to all events and after any electrical storms that occur during an event.

2. A GFCI breaker will be tripped by leakage of electrical current anywhere in the circuit. The only way to locate and correct the *source* of the current leakage is to unplug everything on the circuit and then systematically plug in each item until the GFCI trips again. For instance, if the GFCI trips when a participant's radio is plugged in and turned on, it is likely that the radio is the source of the problem (perhaps due to a loose wire inside the radio, the radio cord lying in water, etc.).
3. Current leakage anywhere in the circuit will result in a loss of electricity to the entire circuit, including all lights and outlets controlled by that breaker. Thus, many participants will be inconvenienced when one individual's faulty electrical equipment trips the GFCI.
4. Nuisance tripping of GFCIs may occur due to the use of long extension cords, especially during damp weather.
5. People who do not understand the purpose of GFCIs may continue to plug in faulty equipment and trip the GFCI repeatedly. If an extension cord or appliance repeatedly trips a GFCI, that cord or appliance should be considered hazardous, and it should not be plugged in again until checked by a qualified electrician.
6. GFCIs function by detecting an imbalance between the outgoing electrical current in the "ungrounded" black wire and the returning current in the "grounded" white wire. Thus, a GFCI will *not* prevent electrocution if the outgoing and returning current are the same. To illustrate: Imagine that you have grabbed the exposed end of a black electrical wire in one hand and the exposed end of a white electrical wire in the other hand. In this case, the GFCI will not trip *if* all of the current passes through your body *and* none of the current leaks through your body to the ground. If this happened, you would probably be electrocuted even though there is a GFCI protecting the circuit. Instances such as this are extremely rare, however, because some of the current will usually leak to the ground.

***Strategy B: Install permanent GFCI outlets in facilities***

i. Advantages:

1. See advantage 1 for GFCI breakers, above.
2. Installation strategies are more flexible with GFCI outlets, compared with GFCI breakers:
  - a. The circuit can be wired so that one GFCI outlet protects the entire circuit at less cost than a GFCI breaker.

- b. Alternatively, the circuit can be wired so that each outlet is protected by its own separate GFCI. In this case, nuisance tripping on one outlet will *not* affect other outlets.

ii. Disadvantages:

1. If many GFCI outlets are installed, correspondingly more materials and labor are required to install, test, and maintain them all.
2. Also see disadvantages 1, 4, 5, 6 for GFCI breakers, above.

**Strategy C:** *Require participants to supply their own portable GFCIs for all personal items they plug in.*

i. Advantages:

1. No cost to the county or to the fair board.
2. Nuisance tripping does not affect multiple participants.

ii. Disadvantages:

1. Considerable cost to participants.
  2. Some participants may not comply, thus endangering themselves and others.
  3. Also see disadvantages 1, 4, 5, 6 for GFCI breakers, above.
3. When building new livestock facilities, install equipotential planes where required by the National Electrical Code to protect animals and people from stray electricity.

**Other general electrical safety recommendations:**

1. Damaged or spliced electrical cords should not be used.
2. Keep cords & appliances away from water.
3. Keep cords off the ground so they will not be damaged by foot traffic.
4. All electrical tools and appliances should either be grounded or double insulated.
5. All extension cords should be grounded and have adequate capacity for the electrical load (compare the listed wattage of plugged-in appliances with the rated wattage of the extension cord).
6. All extension cords used outdoors should bear a UL label for outdoor use.
7. For more electrical safety recommendations for fairs and festivals, see: <http://www.oznet.ksu.edu/agsafe/Manual/ElectricalSafetyPublic.htm>



## International Turtle Conservation

By: Lauren Augustine  
Smithsonian National Zoological Park

The devastating plight that faces the world's turtle and tortoise species is evident. Like many other taxa the main threat to chelonians is habitat destruction, degradation and fragmentation. Another prominent threat to chelonian species is over-harvesting for the pet and food trades. Estimates of the volume of turtles sold for food in Chinese markets each year reach a staggering 12 million individuals. The Turtle Survival Alliance (TSA) was formed in 2001 as a response to the over-harvesting of turtle and tortoise species. Now, 10 years later, this amazing organization has significant relationships



2012 AAZK Travel Grant Recipient, Lauren Augustine, Smithsonian National Zoological Park, with a leatherback sea turtle (*Dermochelys coriacea*)



with many range countries where endangered chelonian species occur. Through education, field work and captive breeding initiatives, this organization is growing quickly in order to respond to the overwhelming number of species in trouble. The TSA has a commitment to zero turtle extinctions in the 21<sup>st</sup> century and has made long-term commitments to programs across the world to help recover decimated turtle and tortoise populations. By hosting workshops in turtle diversity hotspots such as India, Madagascar and Myanmar, the TSA compiles the most comprehensive and up-to-date information on these species. Additionally, these workshops bring turtle and tortoise experts together often for the first time, enabling them interact and collaborate.

The Conservation & Biology of Tortoises & Freshwater Turtles Conference was this past August and I was able to attend thanks to the American Association of Zoo Keepers' (AAZK) travel grant. The TSA hosts this conference annually to bring together an international attendance of turtle and tortoise enthusiasts. With about half of their more than 300 species threatened with extinction, approximately 54 percent of chelonian species are considered threatened. This puts turtles and tortoises at a much higher risk of extinction than many other vertebrates. The Turtle Conservation Coalition recently published *Turtles in Trouble: The World's 25+ Most Endangered Tortoises and Freshwater Turtles-2011*. This publication highlights and prioritizes urgently needed conservation action for the most critically endangered turtles and tortoises in the world.

Being the studbook keeper for three turtles species listed in the top 40 turtles in trouble, I found this conference to be extremely rewarding. Not only does this gathering give me the opportunity to connect with other studbook keepers, but it also connects me with turtle hobbyists from around the world. The diversity of turtle enthusiasts that attend this conference range from private hobbyists to turtle biologists and husbandry professionals, creating a networking opportunity that is invaluable. This year I was able to meet with several of my studbook participants. Together we trouble-shot some of the husbandry and breeding issues being seen in my studbook species. As the studbook keeper for *Cuora galbinifrons*, *Cuora picurata* and *Cuora bouretti* I have been working diligently with other institutions to help identify these species and ramp up their breeding initiatives. These species are difficult to breed, needing a brumation, or cooling period to successfully reproduce. One studbook participant that also attended this year's conference gave an informative talk on *C. galbinifrons* husbandry and reproduction. My studbook benefited greatly by my attendance at this conference and not just because of the presentations and the networking opportunity, but also because I was able to identify ten new turtles that will hopefully be added to my studbook.

The TSA conference offers a great diversity of chelonian talks from husbandry to emerging disease. This year's conference has an entire section on Rana Virus, a disease that is emerging in chelonians in my area. Now the Smithsonian is forging a relationship with scientists in our area to help look at Rana Virus occurrence in turtles. This experience will expand our knowledge and skill set as animal husbandry professionals as well as help us to contribute to some important science.

This conference is a valuable experience for anyone with an interest or passion for turtle and tortoises. It pulls together all types of turtle enthusiasts and compiles the most comprehensive, up to date information on turtle and tortoise husbandry, biology and research. I highly recommend this conference to other AAZK members and I thank the AAZK for awarding me this year's travel grant to attend the Conservation & Biology of Tortoises & Freshwater Turtles Conference.

Sincerely,  
Lauren Augustine

The author of this paper was the recipient of the 2012 AAZK Travel Grant. To apply for the AAZK Travel Grant, or one of the other AAZK Grants (a. Advances in Animal Keeping Course Grant, b. Conservation, Preservation, and Restoration Grant, or c. Research Grant) go to [aazk.org/about/grants/](http://aazk.org/about/grants/). The deadline to apply for all grants is 01 March 2013.



## AAZK Conferences, Fostering the Wonder Within

Melaina Wallace, AAZK Professional Development Committee Chair  
Animal Keeper, Disney's Animal Kingdom®  
Lake Buena Vista, Florida

Once a year I pack my bag and head to what I know will be an amazing week of learning, educating, networking, and inspiring. I travel to the AAZK conference.

For those of you whom have been lucky enough to attend conference that is enough said, for once you have lived and breathed a conference, you will never forget it. For those of you whom have not yet attended, well what are you waiting for? This paper in no way is meant to be a sales pitch; I gain no monetary value from you attending. However, I would gain new peer relationships, knowledge and potentially lifelong friends.

I have been attending conferences since Galveston hosted in 2007. As a newcomer I felt a little overwhelmed and intimidated. I didn't quite know what to expect. I arrived and was quickly surrounded by about 200 of my peers. For some it was their first time and for others it was a reunion of friends. Throughout the week I attended paper sessions and workshops and gained a wealth of knowledge. This was what I expected a conference to be, an education. What I didn't expect was the newfound motivation and passion I had for my profession.



AAZK Professional Development Committee Chair Melaina Wallace and AAZK National President Bob Cisneros enjoying Zoo Day at Rosamund Gifford Zoo in Syracuse, NY during the 2012 AAZK National Conference.

I have wanted to be a zoo keeper since third grade, so I set my goal, I finished my college education and became an intern. I worked my way up into a full time position and along the way my passion for the animals and for this great profession never died, so I was surprised to find the conference bringing me even more motivation to grow. I was in a room with 200 other zoo keepers and we all had one goal, to provide animals with the best care possible.

During the day we listened to paper presentations and learned of new and inventive ways to train, enrich and care for our animals. At night we were able to network and have casual discussions about ourselves, our animals, our frustrations, our hopes, and our dreams.

AAZK conferences are evolving and more hands-on workshops are being provided. This year alone 20 workshops were provided including animal husbandry, conservation, training, leadership skills and conflict management, practical applications of darting, quarantine protocols, and zoonotic diseases just to name a few. You can't come to a conference and not learn, it's amazing. I love furthering my





Curby Simerson, Associate Curator at San Diego Zoo and Carolin Novosel Jung, Animal Keeper at Brookfield Zoo, participating in the Hoof Trim Workshop at the 2011 AAZK National Conference in San Diego, CA.

knowledge and knowing that I can always grow as a zoo keeper.

The education I receive at a conference is invaluable, but the relationships built with my peers are also priceless. While at my first conference I met a man by the name of Bob Cisneros. He presented a paper called "Keeper Workshops and Commitment to Conservation: Helping to Transform a Job into a Profession." At the time Bob was a stranger to me, but I looked at him and said "that man is going places and I want to work alongside him." Bob is now the AAZK President and I have worked with him on the Professional Development Committee for the last 4 years. He has inspired me to grow in this profession to heights I didn't even know I could reach. This year Oliver (Ollie) Claffey presented a paper called "Thirty Eight Years of Crap: A Retrospective Look at Zoo Keeping Since 1974." Ollie began his talk by singing the song he wrote called Zoo Keeper Blues (YouTube it if you haven't had the pleasure of seeing Ollie live). Ollie talked about his 38 years in the profession and mentioned how, like many of us I'm sure, he at a point considered leaving the profession. Ollie didn't leave because he was "born to be a zoo keeper." As soon as he said it I knew exactly what he meant, zoo keeping is in my blood. By the end of his



The AAZK Professional Development Committee at the 2012 AAZK National Conference in Syracuse, NY.



presentation Ollie had many of us in tears. Several in the room spoke of Ollie being the first person they met at their first conference and how his warm inviting greeting made them feel at home.

That's what the AAZK conference is all about. We come together each year, we learn, we educate, we inspire and we get inspired. We all have our bad work days no matter where we work and we feel tired, defeated, underappreciated and run down, but we continue on for the animals we love. An AAZK conference is a rejuvenator. Each year I come home with a new sense of appreciation for this great profession. I am motivated and awe-inspired. I have reconnected with friends and meet new ones along the way, and with any luck I have inspired at least one person the way Bob and Ollie have inspired so many.

Bob posed the question on opening day this year "How many of you are at the conference for the first time?" and at least half the room raised their hand. I hope you will be one of them next year and if you are, please take the time to say hello. Bob ended his talk with "my name is Bob Cisneros and I make a profound impact on my profession" and he does. Thank you, Bob. I hope each of you can proudly say the same. My name is Melaina Wallace and I make a profound impact on my profession.

### Acknowledgements

I want to thank Bob Cisneros for fostering the wonder within me and inspiring me to be a better zoo keeper. I am proud to have you as my peer and friend. Thank you to all of you who attend conferences. You are leading the way in this profession and each and every one of you have proven to be dedicated zoo keepers and that alone is inspiring. Thank you to the host Chapters. All of your hard work does not go unnoticed and because of you we are able to come together each year and be inspired. Finally, thank you to Katherine Leighty, Research Manager and Jill Mellen, Education and Science Director Disney's Animal Kingdom® for editing this paper.

## ATTENTION ALL PHOTOGRAPHERS!

### **AKF Needs Your Photos**

Attention all photographers, the *AKF* needs your photos as potential cover photos and special feature photos throughout the issue. All photos need to be high resolution, 1875 x 2250 pixels or greater, 300 dpi or greater in resolution, 1MB or greater. All photographers will need to submit a photo release form that can be found at [aazk.org/animal-keepers-forum/aazk-photo-model-release-form/](http://aazk.org/animal-keepers-forum/aazk-photo-model-release-form/). Photos that clearly depict facility logos and behind-the-scenes shots will need permission of the facility to be used.

Subjects for the photos should revolve around animal husbandry, conservation, education/interpretation, professional development, significant achievements in the industry (births, exhibits, staff, etc.), and can also include some of the more humorous or unique situations that we all come across each day in our occupations. Captions for each photo should also be submitted.





Where you can share your training experiences!

Training Tales Editors – Jay Pratte, Henry Doorly Zoo;  
Kim Kezer, Zoo New England; and Beth Stark-Posta; Toledo Zoo

## **Behavioral Management of a 1.0 East African Crowned Crane (*Balearica regulorum*) Through Laser Pointer Training.**

By

Dara Girsch, African Animal Keeper  
The Living Desert Zoo & Gardens  
Palm Desert, CA

### **Introduction**

For several years, “Frasier,” a 1.0 East African Crowned Crane (*Balearica regulorum*), has exhibited frequent aggression towards his keepers. These displays would often culminate in Frasier injuring a keeper or himself. The previous method for managing these behaviors was to bring in a tool for protection or restrain Frasier and place him in a holding area. Neither of these methods was especially effective, as Frasier would attack the tool relentlessly or increase the intensity of aggression upon release from holding areas.

I set out, with a team of two additional keepers, to train Frasier to target to a laser pointer as a method of focusing his attention away from keepers and reduce the number of threatening displays. This became a transition to a routine shifting behavior into a holding area, taking a previously negative situation and positively reinforcing his time in holding. These initial behaviors, coupled with a newfound working relationship between Frasier and myself, led to the ability to begin desensitization and to train station behavior.



Figure 1: Frasier performing target behavior. Photo credit- Author



## Process

Establishing the intended behavior of targeting to the laser pointer (Figure 1) was accomplished using basic positive reinforcement techniques. A notable step in eliciting this behavior was to take a step back, literally. When training first began, I was standing directly at the exhibit perimeter. Because male cranes are highly territorial (Ellis et al., 1996), my position at the fence was likely instigating his aggression and his attention was on me, not the laser point. When I began training from several feet away, he instantly focused his attention towards the laser. Researching specifics of crane behavior and accounting for Frasier's personality allowed me to adapt training methods to his ability, giving a greater probability for success.

Several different colors of lasers were tested to see if Frasier responded more to a certain color. Birds have been hypothesized to see twice as many colors as humans throughout the spectrum, and Gruiformes are known to be able to see into the violet range of wavelengths, down to 406 nm (Odeen and Hastad, 2003). A purple laser (wavelength = 405nm, 5mW) was tested, as well as green (wavelength = 532nm, 5 mW), red-orange (wavelength = 735nm, 5mW) and red (wavelength = 650nm, 5mW). Frasier targeted equally well to all of the colors. The green laser was chosen because it was the brightest for the trainer to see in daylight, to ensure that the trainer knew where it was pointed. In the future, laser colors can be used interchangeably to stimulate visual acuity and sustain novelty.

The location of the training sessions was kept consistent, a shady area on exhibit where the laser could most easily be seen, for Frasier and the trainer. Also taken into consideration was the fact that this section of the exhibit was not frequented by keepers, so it could be recognized specifically as a training area. To begin, with the trainer kneeling several feet away (at a pre-determined point, kept consistent) so as to be non-threatening, the laser was pointed approximately a foot away from Frasier's feet on either side. Once he pecked at it, the laser was immediately turned off as the bridge, a verbal 'good,' was given. Frasier was then tossed his reinforcement (crickets or mealworms) through the fence.

Six weeks were spent gathering initial data: the number of times Frasier targeted per session and the number of aggressive displays he exhibited during each session. The aggressive behavior under scrutiny was the "ruffle-bow," a low level threat display, "in which the crane elevates its feathers and slowly, at first, ruffles its plumage until at length the whole body is rapidly shaking" (Ellis et al., 1996). Training sessions were kept very short – under a minute. Frasier was required to target to the laser in less than ten seconds, with five attempts per session. This was to accomplish the desired targeting behavior before any frustration or diverted attention could occur that would lead to belligerent behaviors.

There was a wide discrepancy in the consistency of executing the targeting behavior between each of the trainers. Frasier targeted during 100% of the attempts with his primary trainer, and exhibited very few aggressive behaviors – an average of 0.1 aggressive occurrences per session over the six week period. For the second trainer, he targeted during 98% of the attempts, but exhibited the 'ruffle-bow' display during every session. For the third trainer, Frasier again showed little aggression but successfully targeted less than 50% of the time. It was known before training began that the levels of aggression from Frasier varied greatly for each trainer, regardless of the situational circumstances. The behaviors and their frequency towards each trainer mirrored those observed during everyday servicing of the exhibit.

Because of the variation in successful training and aggression, it was decided that in order to effectively eliminate Frasier's aggression from affecting keepers, he should be trained to shift into a holding area.





Figure 2: Desensitization along outside of wing.  
Photo credit- Author



Figure 3: Wing partially extended by trainer.  
Photo credit- Author

The original method for shifting was simply for Frasier to follow the laser point into a designated holding area. Frasier had shown in training sessions (after the initial data were collected) that he would follow the laser point several feet in any direction when the trainer was stationary. However, he would not follow the laser from across the exhibit; he needed to be directly in front of the trainer before he would initiate targeting.

The first several attempts at shifting using a laser pointer (primary trainer only) showed that Frasier would not follow the laser through a doorway. Because he would not complete the shifting behavior using the laser as the only cue, several others were attempted. Frasier responded very well to a variety of sensory cues – calling his name, tapping, walking through holding areas, facing him, walking ahead of him. In retrospect, successive approximations could have been used to shift Frasier into the holding area using only the laser. However, the time lapse between the failed attempt to shift with the laser and successfully using other cues was only one day. Once inside, he could be positively reinforced with insects or his normal diet by performing the original target behavior with the laser pointer. He performed the shifting behavior equally well for each of the trainers. While release from holding areas still caused an elevated amount of excited behaviors, immediate aggression upon release was not seen. When training for the shifting behavior began, Frasier proved that the simplest method would not be the most effective. In actuality, various other sensory cues (auditory and visual) became the primary training tools, while the laser became obsolete for the shifting behavior.





Figure 4: Frasier on weight board.  
Photo credit- Author

Because all of the previous training was carried out with a barrier between Frasier and me, desensitization to human contact required the ability to read his behavior effectively before entering holding areas with him. This was accomplished using the original target behavior. If Frasier would follow the laser point around holdings, his motivation seemed to be reinforcement from training, and not reinforcing himself with maladaptive behaviors. If he refused to follow the laser, desensitization was not attempted. When distracted with a large amount of reinforcement (insects), Frasier could be approached and touched along his wings and back (Figure 2), coupled with a cue of 'touch.' After several sessions, he would allow his wings to be partially extended (Figure 3), increasing the ease of observing his overall health and minimizing stress. As this behavior progresses, the goal is to reach a point where he could be given the cue, touched and subsequently reinforced.

Currently, I am working on a station behavior (Figure 4) with a weight board (a box designed to fit over a scale), so that regular, stress-free weights can be collected. I continue to use the laser pointer, leading him onto the weight board and reinforcing his time being stationary.

## Conclusion

Training with the laser pointer and to shift into holding areas did not eliminate aggressive behaviors. However, it did minimize the amount of aggression that directly affected keepers during their work. The simple exercise of training with Frasier induced an overall behavioral change. Frasier and I were able to develop a working relationship in which performing the behavior took priority over aggression. It was observed that a greater percentage of Frasier's time on exhibit was spent near the original training location than it was before training started. Frasier even took to 'purring,' a vocalization indicating submission or happiness (Ellis et al., 1996), a polar opposite of his former behavior. As the desensitization behavior is being established, a low-level aggressive outburst towards me has only occurred once over a period of two months.

## Resources

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## BHC Comments by Kim Kezer:

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This month's *Training Tails* is a very good example of how important it is to research the natural history and body language of your training subject. By performing a little research you may discover unexpected information that will help you reach your training goals. Understanding how to interpret the specific body postures and gestures indicating aggression or pleasure are valuable in assisting the trainer in deciding when to proceed. Should the trainer move ahead with desensitization during this session, or not?

Collecting behavioral data prior to the start of training is very helpful in providing quantitative information to guide the direction of the behavioral plan. This will let you make decisions based on data and prevent the trainer from making assumptions. This information also provides a way to evaluate progress in reducing the aggressive behavior.

There are many benefits from using positive reinforcement training. But sometimes it is the unexpected results, like setting out to reduce an undesired behavior by creating desired behavior, and then realizing you now have a working relationship with the animal. Suddenly you are able to train more behaviors! I'm sure this is only the beginning of what you will be able to accomplish.

Thank you for sharing your *Training Tales* with us.



East African Crowned Cranes (*Balearica regulorum*)

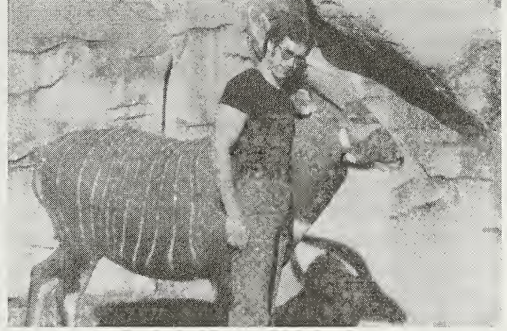


# Remembering John Stephan Romo

(May 13, 1953 - August 21, 2012)

## In Memorium to the Remarkable Life and Times (of the self-proclaimed) “World’s Greatest Zookeeper”

*By Natalie Lindholm, Individual Contributing Member*



Proclaiming one’s self as the “World’s Greatest Zoo Keeper” may sound really presumptuous and pompous. However, Steve Romo really did earn this title. If there was anyone who walked the walk, it was him. In a 40-year zoo keeping career, any project he took on, he took on with tenacity and made a huge mark for himself in the zoo world. By and large he was a quiet person, but those who did know him, know of a man who wouldn’t let much get in his way. Steve was ahead of what we all have seen develop in the last 15 to 20 years. He was making enrichment devices such as giant wind chimes for black rhinos to use, and using techniques for crate training animals before anyone ever really wrote down any training protocols. He was definitely a man ahead of his time.

John Steven Romo, known to most as “Steve”, was born in Alexandria, Kentucky, May 13, 1953. Steve was a bit of an introvert as a teen, but found a place where he fit in when he joined a newly formed club at the Cincinnati Zoo. The Junior Zoologist’s Club was run through the Education Department, under the direction of Barry Wakeman. He worked summers in the Children’s Zoo, and began a lifelong relationship with Ed Maruska, the Cincinnati Zoo’s very outspoken director from 1961-2000. Upon completion from high school, Steve had enrolled in classes at Northern Kentucky University, but his heart was at the Zoo. In mid-1972, Steve was hired as a keeper in the area known as the Deerline. A friend of Steve’s recently recalled Steve’s first day on the job at the zoo. Steve was raking the alpaca yard and when asked what he was doing, Steve zealously replied, “I GOT ME A JOB!” That would be just the start to his 40-year career.

The name Steve Romo would become synonymous with the “African Veldt” at the Cincinnati Zoo. Steve was larger than life. He really was unforgettable at somewhere near 6’ 3”. When he was in his 20’s he used to like to grow his hair out, big bushy beard and all, and then completely shave his head and face to shock people. I remember being a kid in one of the Saturday morning zoo clubs “Adventures in Zoology”, and Steve would sit in and watch his three friends teaching all of us kids. One week the big, hairy dude in denim was there, and a few weeks later there was this bald guy. I wracked my poor little brain wondering why the bald guy was so familiar until I had the “aha!” moment and realized who it was. As a budding little zoo person, Steve was pinging on my radar. My whole world was the zoo, and my romance with hoofstock and rhinos was budding, so naturally Steve was someone who I became very familiar with. In the summer of 1978, I finally mustered up the nerve to approach him. Armed with a drawing of a bongo, I presented my gift, and he commented that it was very good, and showed it to the keeper who he had been talking to. Next thing I know he asked me if I’d like to see the bongo calf that had been born! That was my first encounter with the man who would influence my zoo career greatly. I attended the vocational high school that was

located on grounds of the Cincinnati Zoo, and was able to go to “lab” in the African Veldt, with Steve as my teacher. Anyone who went through that lab was expected to do the work the way a keeper would....By the way, Jean Hromadka worked for a time at the Cincinnati Zoo in Steve’s area. Steve pretty much busted her chops on a daily basis, and she had the fortitude to tough it out, and go on to be quite an inspiration to budding young zoo keepers out there (including myself, but that is a different article).

Steve jumped into his career full steam ahead. He was credited for many improvements in animal safety and appearance of the exhibits. He had the terrain at the edge of the Veldt exhibit yard sloped for safety for both animals and the public. He also added large brush piles into the nilgai exhibit to give the muntjacs a place to hide. He was credited for sound animal husbandry in all of his areas by the continuous arrival of babies of many of the species in his care. In five years there had been 35 eland born! A black rhino calf was soon due too, and since there was a pair of black rhinos in the Elephant House, it put the two departments in a bit of a friendly race for which one would have more calves born. Steve was one of the first to start writing detailed notes on just about anything pertaining to the daily activities of the collection. He commented that it was pretty different from a note he had found scribbled on the wall of the old office in the Veldt barn, “Eland calf born last night 5/20/41”. . . In a 1978 article in the Volunteer newsletter written by Madge Van Buskirk, Steve was given praise for the zoo having quite the baby boom with eland, zebras, alpacas, and Chinese water deer everywhere. He was never satisfied with the status quo; he was always improving his areas, always for better animal management. Ms. Van Buskirk also noted that from personal experience, “Let it here be noted and quoted that Tour Guide training sessions conducted by Steve, or even just a brief conversation would leave them overwhelmed with interesting and informative details, and with a totally better understanding of “his” animals...”

Starting in the late 70’s reproductive physiology with exotic animals was beginning to take off. Steve worked closely with Dr. Paul Russell, the head of the zoo’s Scientific Advisory Board. Reproductive work had begun on alpaca, bongo, and the then newly acquired greater kudu. I know from personal experience that Steve was gathering information for improving the kudu diets. In the days before Mazuri® diets and nutritionists, kudu were not thriving on the “Exotic Ruminant” grain that was offered, so Steve, always looking for something better for the animals, consulted with the nutritionist at the Toronto Zoo. Another example of Steve’s quest to find out as much about his animals as possible, were the milk samples he collected from the black rhino, Princess, whenever she had a calf. Milk samples were sent off for analysis to develop a proper formula for hand-rearing black rhino calves should they be rejected by their mothers.

By the early 80’s Dr. Betsy Dresser was starting to explore the possibilities of embryo transfer with exotic species in both bovids, and exotic cat species. Steve worked very closely with Dr. Dresser and the zoo’s veterinary staff to coordinate the many procedures required to collect and implant embryos first from eland to eland, and eventually from bongo to bongo. Dr. Lynn Kramer, who is now the Deputy Director of Animal Conservation and Science at the Dallas Zoo, was the Cincinnati Zoo’s vet at that time and said that he had many interesting collaborations with Steve. He recently told me that Steve was absolutely key to the success of the reproductive work carried out by Dr. Dresser and CREW. Dr. Kramer said that Steve would meet him at all hours to administer the injections of hormones to the eland. Steve also devised a chute that could be used for embryo collection. The reproductive staff asked if there was a way that they could do a standing sedation with the eland for embryo collection since collecting the embryos when the animals were in sternal recumbency was difficult. Dr. Kramer realized the hazards of such a procedure, and Steve came up with a chute design that provided safety for the humans and animals. The next step was using cryopreservation to hold embryos in suspended animation for an indefinite period of time, but coordinating with the keepers and reproductive staff was still doggedly seen to by Steve.

Mike Dee, former General Curator of the Los Angeles Zoo, had been asked to go to Malaysia in 1984 to help the Malaysian Game Department with a Sumatran rhino calf that had been found abandoned



in the forest. Mike was unable to go, and suggested that Steve go in his place. It was there where he met Mohammed Bin Momin Khan, also known as “Chief”, the head of the Malaysian Department of Wildlife and National Parks from 1958 until 1992. At this time Steve started to become deeply involved with Sumatran rhino conservation. In 1984, I was sent a newspaper article about the capture of Sumatran rhinos in Malaysia. They were being brought into captivity for conservation and breeding purposes. Having been in college out of state, I didn’t realize that Steve was participating and both learning from and contributing to the operation. In 1989, Sumatran rhinos were sent to the US; Los Angeles, San Diego, Cincinnati, and the Bronx, in hopes that they would form an *ex situ* breeding population. Unfortunately they did not thrive, and when there were just three, one at Los Angeles, one in the Bronx, and one at Cincinnati, the decision was made to have all of them moved to Cincinnati in hopes of breeding them there. At one point the male, Ipuh, had lost so much weight that Ed Maruska finally gave Steve the OK to do anything he thought would work to save the rhino. In another conversation, Steve said that he suddenly thought about feeding fresh cut browse. Steve went ahead and ordered several boxes of browse from San Diego Zoo’s “browse department”. In personal communication with Steve about this situation, he would tell how Ipuh was within 24 hours of dying, but on that cold, wintery, Cincinnati day, when the door to the barn opened and the boxes were delivered; Ipuh summoned the strength to move from the far stall to the stall near the door and immediately began eating the browse. Ipuh eventually recovered, and was able to go on to produce three live calves with Emi. Steve would not give up on saving Ipuh, and without his insistence on doing whatever they could, Ipuh probably wouldn’t have lived.

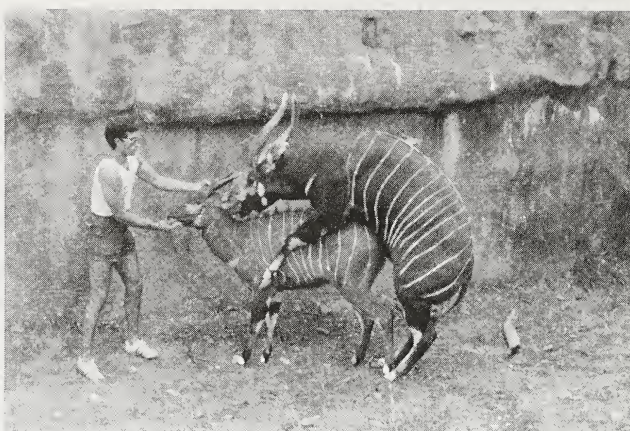
*He always wanted what was best for the animals,  
and I believe that in his later years - being able to  
pass down knowledge he had gained - was his way  
of paying it forward to the animals, and to keepers  
who wanted to deepen their knowledge.*

In 2001 Emi, the beloved Sumatran rhino cow that died in 2009, finally gave birth to Andalas. There had been several pregnancies prior to Andalas, but for whatever reason they terminated *in utero*. Again, with the protocols and line of communication that Steve had established with CREW, the zoo’s reproductive research unit, work proceeded with Emi, and finally resulted in the first live birth of a Sumatran rhino in captivity in 112 years. In 2000, Steve accepted a three-year position with Sungai Dusun where he had been previously in 1984. Steve was the consultant for the rhino facility. He was able to oversee daily operations and offer his expertise in rhino management with the staff. Living in very modest accommodations, Steve set out to provide the best conditions for the rhinos and train the staff.

In 2003, Steve’s contract with Sungai Dusun expired. Before he accepted the Sungai Dusun position he had applied to be a keeper at Los Angeles. Upon his return to the States he was hired at Los Angeles and became Andalas’ primary keeper. Andalas had been moved to the Los Angeles Zoo since Emi had given birth to her second calf, Harapan. Chief told me that he had seen Andalas in Los Angeles one year and mentioned to Steve that the rhino looked somewhat underweight. The next year, after having modified the browse diet for Andalas, Chief was pleased to see that Andalas had filled out over his hips and in his hind end. In 2007, the decision was made to send Andalas to Way Kambas in Indonesia, to the Sumatran Rhino Sanctuary. Two cows there, Bina and Ratu, were prime candidates to breed with Andalas. Sixty some hours after leaving Los Angeles, Andalas was uncrated and was allowed to settle in. Steve stayed for about a week to make sure everything was fine, and

then returned to Los Angeles to continue his work there. This year, Andalas became a father with Ratu, and fortunately Steve was able to hear about Andatu's birth.

Since Andalas was gone, Steve had applied to become the primary keeper for the giant river otters. When he took over on the otter string, he called me to ask about otter pregnancy, birth, and hand-rearing, as I had worked with that species as well. The pair he was working with had given birth previously, but apparently the young didn't survive. I sent



him a hard copy of the Giant River Otter Husbandry Manual, which he in turn copied for the staff. When they gave birth, Steve provided information to the Nursery staff so that the cubs could be hand-reared. This, like the information he gathered back in the day for red panda breeding was what Steve was all about. He always wanted to make things "work". I have heard really wonderful stories of how he would share his knowledge, and also give great moral support to his fellow keepers in Los Angeles. He always wanted what was best for the animals, and I believe that in his later years that being able to pass down knowledge he had gained was his way of paying it forward for the animals, and for keepers who wanted to deepen their knowledge.

In 2011, Steve would once again be the primary keeper for one more Sumatran rhino, Harapan. Harapan was Emi's second calf, and who was to be transferred to White Oak from Cincinnati, and then from White Oak to Los Angeles. Not too long after becoming a rhino keeper again, Steve began feeling drained and run down. By late winter of this year he began seeing doctors to find out what was wrong. He was eventually diagnosed with pancreatic cancer (which is also what took Jean Hromadka from us). He wasn't going to let this news stop him from one last trip to SE Asia to say goodbye to his friends there. Unfortunately, due to rapidly failing health he had to cut the trip short and return home. I am very proud of the keeper staff at the Los Angeles Zoo for coming to his aid in a time of profound need. I am also grateful to Cathy O'Brien Collins for arranging his return to live with his mother, Jean, in Alexandria, Kentucky. Thanks go to Swamy Sunkara, another longtime friend who accompanied Steve back to Cincinnati from Los Angeles, and Amy Doran, Cecil Jackson Jr., and others who sat with Steve in his final days at the hospice in Fort Thomas, KY. We are one hell of a crowd, when the rubber meets the road, at the end of the day we are always there for one another. If there is one thing to take away from the story of Steve's life is don't ever give up on your dream, pursue your passions without letting anyone stand in your way. One person can make a difference. I don't like to think of what conservation and care for animals such as the Sumatran rhino would be like without the monumental efforts of John Stephan Romo. He was a great mentor and a true friend.

## References

Dresser, B.L., Romo, J.S., Brownschidle, C.M., and P.T. Russell. (1980). Reproductive behavior and birth of a Bongo (*Boocercus eurycerus*) at the Cincinnati Zoo. *International Zoo Yearbook*. 20:229-234.



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